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CLAIMS

1. Electrically controllable device having variable optical/energy properties in transmission or in reflection, characterized in that it is made as a single self-supporting film, the said film being formed from a polymerized blend of at least a first element suitable for providing a blend with an electrochromic functionality and at least a second element suitable for providing an electrolyte functionality for transporting ionic charges within the said blend.
2. Device according to Claim 1, characterized in that the blend constitutes a single matrix that is obtained by simultaneous polymerization of the first and second elements.
3. Device according to Claim 1, characterized in that the blend constitutes a single matrix that is obtained by successive polymerization of the first and second elements.
4. Device according to either of Claims 1 and 2, characterized in that the first element is a conductive polymer.
5. Device according to Claim 4, characterized in that the first element is a polymer based on a 3,4-alkylene dioxythiophene or one of its derivatives.
6. Device according to Claim 4, characterized in that the first element is a polymer based on carbazole or one of its derivatives.
7. Device according to Claim 1, characterized in that the first element is a blend of at least two electrochromic materials, at least one having an anodic coloration, the other having a cathodic coloration.

8. Device according to Claim 7, characterized in that the material having a cathodic coloration is a bipyridine salt.
9. Device according to Claim 7, characterized in that the material having an anodic coloration is based on 5,10-phenazine or one of its derivatives.
10. Device according to one of Claims 1 to 3, characterized in that the second element is a polymer chosen from polyoxyalkylenes.
11. Device according to Claim 10, characterized in that the second element is chosen from polyoxyethylenes or one of its derivatives.
- 10 12. Device according to either of Claims 10 and 11, characterized in that the second element is based on difunctional poly(ethylene glycol) or one of its derivatives.
13. Device according to one of Claims 1 to 12, characterized in that the self-supporting film includes at least one third element suitable for improving its mechanical integrity or for improving the ionic conductivity.
- 15 14. Device according to Claim 13, characterized in that the third element is a polymer chosen especially from polyacrylates, polymethacrylates, polycarbonates, polyacetates, polyurethanes, cellulotics, etc.
- 20 15. Device according either of Claims 13 and 14, characterized in that the third element is based on diethylene glycol diallyl carbonate or one of its derivatives, or else poly(ethylene glycol) methyl ether methacrylate.
- 25 16. Device according to any one of Claims 1 to 15, characterized in that

the film constitutes an interpenetrating network.

17. Device according to any one of Claims 1 to 15, characterized in that the film constitutes a semi-interpenetrating network.
18. Device according to one of Claims 1 to 16, characterized in that it has
5 a gradient in the composition of the first element along a characteristic dimension of the film.
19. System incorporating at least one device according to any one of the preceding claims, characterized in that it furthermore includes at least one carrier substrate, the said device being placed between two
10 current leads, namely the lower current lead and the upper current lead respectively ("lower" corresponding to the current lead closest to the carrier substrate, as opposed to the "upper" lead which is furthest from the said substrate).
20. System according to Claim 19, characterized in that it is an
15 electrochromic or viologen-based system.
21. System according to either of Claims 19 and 20, characterized in that it constitutes a vehicle sunroof, that can be autonomously actuated, or a vehicle side window or rear window, or a rearview mirror.
22. System according to either of Claims 19 or 20, characterized in that it
20 constitutes a windscreen or a portion of a windscreen.
23. System according to either of Claims 19 and 20, characterized in that it constitutes a graphical and/or alphanumeric data display panel, glazing for buildings, a rearview mirror, an aircraft windshield or cabin window, or a roof window.
- 25 24. System according to either of Claims 19 and 20, characterized in that

it constitutes:

- interior or exterior glazing for buildings;
 - a shop showcase or countertop display case, which may be curved;
 - 5 - glazing for protecting an object of the painting type;
 - an antiglare computer screen;
 - glass furniture;
 - a wall separating two rooms inside a building or two compartments in a motor vehicle.
- 10 25. System according to any one of Claims 19 to 24, characterized in that it operates in transmission or in reflection.
26. System according to one of Claims 19 to 25, characterized in that the substrate is transparent, flat or curved, clear or bulk-tinted, and of polygonal shape or at least partly curved.
- 15 27. System according to one of Claims 19 to 26, characterized in that the substrate is opaque or opacified.
28. System according to one of Claims 19 to 27, characterized in that it incorporates another functionality.
29. Process for obtaining a device according to any one of Claims 1 to 20 18, characterized in that:
- optionally, the second element is blended with the third element in the presence of a polymerization initiator;
 - the polymerization of the second element is carried out by thermal activation of the blend, and the thermal activation of the blend is continued until the third element has polymerized; and
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- the second and third elements are polymerized or copolymerized in a step by thermal activation of the blend.

30. Obtaining process according to Claim 29, characterized in that:

- the first element is added to the blend of the second and third elements;
- the first element is polymerized, by immersion of the blend, with the aid of a polymerization initiator; and
- the blend is rinsed.

31. Process according to Claim 29, characterized in that:

- the polymerized blend of the second and third elements is brought into contact in a bath based on the first element;
- the first element is polymerized, by immersion of the blend, with the aid of a polymerization initiator; and
- the blend is rinsed.

32. Process according to one of Claims 29 to 31, characterized in that the film is impregnated with an Li^+ salt, or one based on another cation, and optionally with a plasticizer.

33. Process according to one of Claims 29 to 31, characterized in that the impregnation of the film is carried out during the film production steps, by incorporating a charge provider into the blend of monomers of the three elements.